

- c) a light absorbing amino acid having sunscreen activity or a light absorbing amino acid derivative having sunscreen activity; and
- d) a carrier.

2. (Amended)

The composition of claim 1, wherein the carotenoid comprises a cyanobacterial carotenoid.

3. (Amended)

The composition of claim 2, wherein the carotenoid comprises a compound selected from the group consisting of  $\beta$ -carotene, lutein, neoxanthin, zeaxanthin, violaxanthin, antheraxanthin, caloxanthin, nostoxanthin, echinenone, canthaxanthin, oscillaxanthin and myxoxanthophyll.

4. (Amended)

The composition of claim 1, wherein the polyphenolic compound comprises a cyanobacterial polyphenolic compound.

5. (Amended)

The composition of claim 4, wherein the polyphenolic compound comprises scytonemin.

6. (Amended)

The composition of claim 1, wherein the amino acid comprises a mycosporine amino acid.

7. (Amended)

The composition of claim 6, wherein the mycosporine amino acid comprises a compound selected from the group consisting of mycosporine-glycine, palythine, asterina-330, palythinol, palythene, porphyra-334, mycosporine-glycine:valine and shinorine.

8. (Amended)

The sunscreen composition of claim 1, further comprising at least one cosmetically acceptable adjuvant or additive.

9.

A sunscreen composition comprising a carrier and an effective amount of a heteroautotrophic cell extract or a photoautotrophic cell extract, the extract having sunscreen activity, the cells having been cultured under conditions of high excitation pressure.

10. (Amended)

The composition of claim 1 wherein the carrier is at least one of either water, a gas, a water-based liquid, an oil, a gel, an emulsion, a dispersion or a mixture thereof.

11. (Amended)

A personal care product comprising the composition of claim 1.

12. (Amended)

A method for protecting the human skin, human hair or another surface from solar radiation, comprising topically applying thereto an effective amount of the sunscreen composition of claim 1.

13.

A method of inducing a photoautotrophic cell or heterotrophic cell to produce a compound for absorption of solar radiation, the method comprising culturing the cell under conditions of high excitation pressure.

14. (Amended)

A sunscreen composition, comprising at least one compound of claim 13.

15.

A method of producing an extract having an increased concentration of at least one of myxoxanthophyll, scytonemin and/or mycosporine amino acid, the method comprising:

- a) culturing cyanobacteria under conditions of high excitation pressure; and
- b) isolating an extract including at least one of myxoxanthophyll, scytonemin and mycosporine amino acid.

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16. (Amended)

A method of determining the sunscreen activity of an extract , comprising: extracting photoautotrophic cells to produce a solution; producing an aqueous filter containing the extract; determining whether the aqueous filter protects photosystem I or II from UV radiation wherein improved protection from UV radiation indicates that the compound has sunscreen activity.

17.

A method for protecting human eyes from solar radiation, comprising applying at least one of a carotenoid, a polyphenolic compound and/or a mycosporine amino acid or a derivative of a carotenoid, a polyphenolic compound or a mycosporine amino acid to an eye wear lens or a window.

18.

A method of reducing degradation of a chemical that is sensitive to ultraviolet light comprising applying the composition of claim 1 to the chemical.

19.

The composition of claim 1, wherein the amino acid or amino acid derivative is selected from the group consisting of tyrosine, tryptophan, a tyrosine derivative having sunscreen activity and a tryptophan derivative having sunscreen activity.